

Application No. 10/072,494
Docket No. A1-1431
Amendment dated March 3, 2005
Reply to Office Action of January 4, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): An apparatus for delivering food product to a means for cutting in a substantially horizontal plane through the product, the apparatus comprising:

a passage extending downwardly toward the cutting means and defining an opening in proximity to the cutting means, the passage comprising oppositely-disposed first and second portions;

means for delivering to the passage elongate food products having diameters smaller than a distance between the first and second portions of the passage, the delivering means being operable to longitudinally align the products with the passage so that the products enter and travel downwardly through the passage with a longitudinal axis of each product substantially parallel to the passage;

guide means disposed along the first portion of the passage and oriented substantially parallel to the passage; and

means for applying a force on each of the products as the product travels downward through the passage so that the product is forced away from the second portion of the passage, toward the first portion of the passage, and

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into contact with the guide means during engagement with the cutting means, wherein the applying means comprises at least two fluid jets flowing across the passage from the second portion thereof toward the first portion thereof so as to impact the product as the product travels downward through the passage, forcing the product away from the second portion of the passage and into contact with the guide means, and the at least two fluid jets are disposed at an angle relative to each other of greater than 0 degrees and less than 180 degrees.

Claim 2 (previously presented): An apparatus according to claim 1, wherein the passage is defined by a tubular member, the first portion of the passage is defined by a first wall portion of the tubular member, and the applying means are located at an oppositely-disposed second wall portion of the tubular member.

Claim 3 (canceled)

Claim 4 (currently amended): An apparatus according to claim 1, ~~claim 3~~, wherein the at least two fluid jets are coplanar and converge toward the first portion of the passage.

Claim 5 (canceled)

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Claim 6 (currently amended): An apparatus according to claim 1, ~~claim 3~~, wherein the at least two fluid jets intersect at the first portion of the passage.

Claim 7 (currently amended): An apparatus according to claim 1, ~~claim 3~~, wherein each of the at least two fluid jets flows in a downward direction at an angle of about 0 degrees to less than 90 degrees from horizontal.

Claim 8 (original): An apparatus according to claim 1, wherein the passage is disposed at an angle of about 90 degrees to the plane of the cutting means.

Claim 9 (original): An apparatus according to claim 1, wherein the cutting means comprises a hub at a vertical axis of rotation of the cutting means, and blades extending radially from the hub.

Claim 10 (original): An apparatus according to claim 1, wherein the blades having cutting edges that produce a crinkled or V-slice cut through the product.

Claim 11 (previously presented): An apparatus according to claim 1,

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wherein the delivering means and the passage cooperate to cause the products to be stacked within the passage while one of the products located nearest the opening of the passage is engaged with the cutting means.

Claim 12 (previously presented): An apparatus for delivering elongate food product to a cutting means having a substantially horizontal cutting plane, the apparatus comprising:

means for defining a substantially vertical passage, the defining means comprising a wall portion, a second portion diametrically opposite the wall portion so as to be spaced apart from the wall portion by the passage, and an opening in proximity to the cutting means;

splines disposed on the wall portion and oriented substantially parallel to the passage;

at least a first set of at least two fluid jets flowing in a downward direction across the passage from the second portion of the passage toward the wall portion, the fluid jets converging toward the wall portion to apply a force on a product traveling downward through the passage, the at least two fluid jets forcing the product away from the second portion of the defining means and toward the wall portion of the defining means so as to maintain the product in contact with the splines during engagement with the cutting means; and

means for delivering the product to the passage, the delivering means being operable to separate and longitudinally align the product with the passage

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so that the product enters and travels through the passage with a longitudinal axis of the product substantially parallel to the passage.

Claim 13 (previously presented): An apparatus according to claim 12, wherein the defining means is a tubular member, the wall portion of the defining means is a first wall portion of the tubular member, the second portion of the defining means is a second wall portion of the tubular member diametrically opposite the first wall portion, and the fluid jets are emitted from nozzles located in the second wall portion.

Claim 14 (previously presented): An apparatus according to claim 12, further comprising at least a second set of at least two fluid jets flowing in a downward direction across the passage from the second portion of the passage toward the wall portion, the second set of fluid jets converging toward the wall portion to apply a force on the product traveling downward through the passage, the second set of fluid jets being located above the first set of fluid jets within the passage.

Claim 15 (original): An apparatus according to claim 14, wherein the first set of fluid jets are substantially coplanar and disposed at an angle relative to each other of up to about 90 degrees, the second set of fluid jets are substantially coplanar and disposed at an angle relative to each other of up to

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about 90 degrees, and each of the fluid jets flows in a downward direction at an angle of up to about 45 degrees from horizontal.

Claim 16 (original): An apparatus according to claim 14, wherein the fluid jets of at least one of the first and second sets intersect at the wall portion of the passage.

Claim 17 (original): An apparatus according to claim 12, wherein the passage is disposed at an angle of about 90 degrees to the cutting means.

Claim 18 (original): An apparatus according to claim 12, wherein the cutting means comprises a hub at a vertical axis of rotation of the cutting means, and blades extending radially from the hub.

Claim 19 (original): An apparatus according to claim 18, wherein each blade of the cutting means passes beneath the opening in a direction away from the second portion of the passage and toward the wall portion of the passage, the wall portion has an exit point at which each of the blades leaves the opening, and the fluid jets intersect directly above the exit point of the wall portion.

Claim 20 (original): An apparatus according to claim 18, wherein the

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blades produce a crinkle or V-slice cut through the product.

Claim 21 (currently amended): A method of delivering food product to a means for cutting in a substantially horizontal plane through the product, the method comprising the steps of:

providing a passage extending downwardly toward the cutting means and defining an opening in proximity to the cutting means, the passage comprising guide means disposed along a first portion of the passage that is opposite a second portion of the passage, the guide means being oriented substantially parallel to the passage;

delivering to the passage elongate food products that have diameters smaller than a distance between the first and second portions of the passage, the products being delivered longitudinally aligned with the passage so that the products enter and travel downward through the passage with a longitudinal axis of each product substantially parallel to the passage; and

applying a force to each of the products as the product travels downward through the passage so that the product is forced away from the second portion of the passage, toward the first portion of the passage, and into contact with the guide means during engagement with the cutting means, wherein the force is applied by at least two fluid jets flowing across the passage from the second portion thereof toward the first portion thereof so as to impact the product as the product travels downward through the passage, forcing the

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product away from the second portion of the passage and into contact with the guide means, and the at least two fluid jets are disposed at an angle relative to each other of greater than 0 degrees and less than 180 degrees.

Claim 22 (previously presented): A method according to claim 21, wherein the passage is defined by a tubular member, the first portion of the passage is defined by a first wall portion of the tubular member, and the force is applied from an oppositely-disposed second wall portion of the tubular member.

Claim 23 (canceled)

Claim 24 (currently amended): A method according to claim 21, ~~claim 23~~, wherein the at least two fluid jets are coplanar and converge toward the first portion of the passage.

Claim 25 (canceled)

Claim 26 (currently amended): An apparatus according to claim 21, ~~claim 23~~, wherein the at least two fluid jets intersect at the first portion of the passage.

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Claim 27 (currently amended): An apparatus according to claim 21, ~~claim 23~~, wherein each of the at least two fluid jets flows in a downward direction at an angle of about 0 degrees to less than 90 degrees from horizontal.

Claim 28 (original): A method according to claim 21, wherein the passage is disposed at an angle of about 90 degrees to the cutting means so that the product travels in a direction substantially perpendicular to the cutting means.

Claim 29 (original): A method according to claim 21, wherein the cutting means rotates about a vertical axis and comprises a hub at the vertical axis and blades extending radially from the hub.

Claim 30 (original): A method according to claim 29, wherein the blades produce a crinkle or V-slice cut through the product.

Claim 31 (previously presented): A method according to claim 21, wherein the products are delivered to the passage so that the products are stacked within the passage while one of the products located nearest the opening of the passage is engaged with the cutting means.

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Claim 32 (previously presented): A method of delivering elongate food product to a cutting means having a substantially horizontal cutting plane, the method comprising the steps of:

providing a substantially vertical passage defined by a wall portion, a second portion diametrically opposite the wall portion so as to be spaced apart from the wall portion by the passage, and an opening in proximity to the cutting means, the wall portion having splines extending therefrom and oriented substantially parallel to the passage;

delivering elongate product to the passage so that the elongate product are separated and longitudinally aligned with the passage so that the elongate product enters and travels through the passage with a longitudinal axis of the elongate product substantially parallel to the passage; and

flowing at least a first set of at least two fluid jets in a downward direction across the passage from the second portion of the passage toward the wall portion, the fluid jets converging toward the wall portion to apply a force on a product traveling downward through the passage, the product within the passage being forced away from the second portion of the vertical passage and toward the wall portion of the vertical passage so as to maintain the product in contact with the splines during engagement with the cutting means.

Claim 33 (previously presented): A method according to claim 32, wherein the passage is defined by a tubular member, the wall portion is a first

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wall portion of the tubular member, the second portion is a second wall portion of the tubular member diametrically opposing the first wall portion, and the fluid jets are emitted from nozzles located at the second wall portion.

Claim 34 (original): A method according to claim 32, wherein at least a second set of at least two fluid jets flow across the passage toward the wall portion so as to impact the product as the product travels downward through the passage, the second set of fluid jets being located above the first set of fluid jets within the passage.

Claim 35 (original): A method according to claim 34, wherein the first set of fluid jets are substantially coplanar and disposed at an angle relative to each other of up to about 90 degrees, the second set of fluid jets are substantially coplanar and disposed at an angle relative to each other of up to about 90 degrees, and each of the fluid jets flows in a downward direction at an angle of up to about 45 degrees from horizontal.

Claim 36 (original): A method according to claim 34, wherein the fluid jets of at least one of the first and second sets intersect at the wall portion of the passage.

Claim 37 (original): A method according to claim 32, wherein the

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passage is disposed at an angle of about 90 degrees to the cutting means so that the product travels in a direction substantially perpendicular to the cutting means.

Claim 38 (original): A method according to claim 32, wherein the cutting means rotates about a vertical axis and comprises a hub at the vertical axis and blades extending radially from the hub.

Claim 39 (original): A method according to claim 38, wherein each blade of the cutting means passes beneath the opening in a direction away from the second portion of the passage and toward the wall portion of the passage, the wall portion has an exit point at which each of the blades leaves the opening, and the fluid jets intersect directly above the exit point of the wall portion.

Claim 40 (original): A method according to claim 38, wherein the blades produce a crinkle or V-slice cut through the product.